



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,546	02/05/2002	Francis Bryselbout	000348-297	3132

7590 05/27/2005

E. Joseph Gess
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

SINES, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

1743

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,546

Applicant(s)

BRYSELBOUT, FRANCIS

Examiner

Brian J. Sines

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-18 and 20-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-18 and 20-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/5/2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

TS

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, regarding claim 13, the recited pipe of a pump for raising liquid over a lift-type sampler must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3 – 18 & 20 – 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1. Claims 1 & 3 – 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 1, in the preamble it is unclear if the gas comprises 95 % oxygen only or if the gas comprises at least 95 % oxygen methane and non-methane hydrocarbons combined. Canceled claim 2 referred to oxygen only in which the gas is comprising at least 95 %, 99 % or 99.5 % oxygen.

2. Claims 15 – 18, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: Regarding claim 15, it is unclear as to how each of the means limitations are operatively connected. For example, is the means for the combustion of hydrocarbons positioned before or after the means for detection of the combined hydrocarbons in the gas? The claim merely recites a listing of features possessed by the claimed device without specifying how these features are structurally arranged to form a functional device. The structure, which goes to make up the device, must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device.

Art Unit: 1743

3. Claim 9 recites the limitation "hydrogen" in line 1. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 25 recites the limitation "hydrogen" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3 – 8, 10 – 18, 20 – 24, 26 – 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (U.S. Pat. No. 5,765,397 A) (hereinafter "Honda") in view of Saitoh et al. (U.S. Pat. No. 4,042,332) (hereinafter "Saitoh").

Regarding claims 1, 3 – 6 & 20 – 24, Honda teaches an air liquefaction separation process and associated apparatus. Honda indicates that in the process oxygen gas is formed. The gas, which is predominately oxygen also contains very small amounts of hydrocarbons, such as methane, ethane, propane, etc. (see col. 6, lines 49 – 65). The gas composition is therefore inherently anticipated to comprise of at least 95 % oxygen,

Art Unit: 1743

methane, and other non-methane hydrocarbons, e.g., propane. The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. “The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.” *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). (MPEP § 2112).

Honda teaches that substances contained in very small amounts in air, e.g., hydrocarbons, such as methane, ethane and propane, are liable to explode when the concentration of these components exceeds a predetermined level in a high oxygen atmosphere (col. 1, lines 51 – 59). It therefore would accordingly have been obvious to a person of ordinary skill in the art to contemplate the monitoring of these hydrocarbon components in the such a high oxygen atmosphere.

Regarding claim 1, Saitoh teaches a process for the detection of hydrocarbons other than methane in a gas comprising oxygen, methane and hydrocarbons other than methane, wherein the process comprises the stages of: a stage for the detection of the combined hydrocarbons in the gas, providing a first value for the combined or total hydrocarbon content of a sample of gas; a stage of combustion or oxidation of hydrocarbons other than methane; a stage of detection of methane in the gas sample, providing a second value; and a stage of calculation of the amount of hydrocarbons other than methane by the difference between the first and second values (col. 2, lines 1 – 27).

Regarding claim 7, Saitoh teaches that the hydrocarbons other than methane are subjected to incineration or oxidation using a catalyst (col. 2, lines 1 – 27).

Regarding claim 8, Saitoh teaches the use of a flame ionization detector (FID detector, 5) (col. 2, lines 1 – 27).

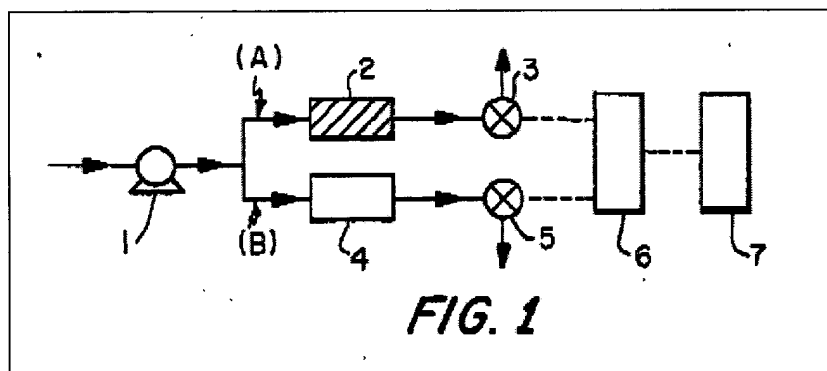
Art Unit: 1743

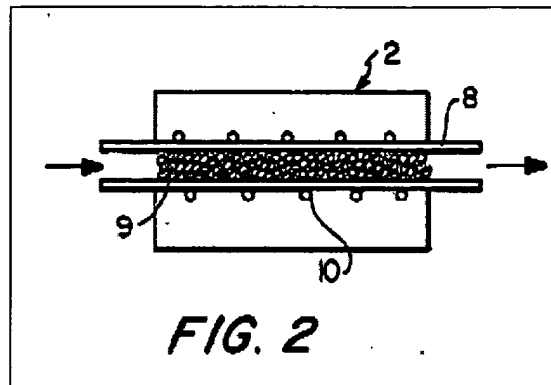
Regarding claims 10 & 26, Saitoh teaches that methane is not subjected to oxidation or incineration (col. 2, lines 1 – 27).

Regarding claim 11, Saitoh teaches an operating temperature of between and including 100 °C to 200 °C (col. 2, lines 32 – 41).

Regarding claim 13, Honda teaches the incorporation of a pipe for sample withdrawal (e.g. liquid oxygen withdrawal passage 11) (col. 7, lines 7 – 22; col. 10, lines 41 – 48; figures 1 – 6).

Regarding claims 15 – 17, Saitoh teaches a detection apparatus comprising: a means (flame ionization detector (FID) 5) for the detection of the combined hydrocarbons in a gas, which provides a first value for the combined hydrocarbons; a means (catalyst vessel 2) comprising a catalyst (9) for the combustion of the hydrocarbons other than methane; a means (FID 3) for the detection of methane, which provides a second value; and a means (calculator 6) for the calculation of the amount of hydrocarbons other than methane by the difference between the first and second value (col. 2, lines 1 – 66; figures 1 & 2). Saitoh also teaches a means for introducing hydrogen into the gas (e.g., suction pump 1) (col. 2, lines 1 – 27).





Regarding claims 14, 18, 28 and 29, Honda teaches an apparatus for separating and purifying oxygen from air. Honda teaches an apparatus comprising: a withdrawal means (liquid oxygen withdrawing passage 11) for the withdrawal of a sample of liquid oxygen; a means (main heat exchanger 4) for the evaporation of liquid oxygen, producing an evaporated gas (col. 5, line 6 – col. 6, line 17; col. 7, lines 30 – 43; figure 6). Honda does not specifically teach the incorporation of a hydrocarbon detection device according to Saitoh, as discussed above. Although Honda does indicate that the hydrocarbon composition of the liquid oxygen is ascertained after gasification of the liquid oxygen in the main heat exchanger (4) (see col. 7, lines 31 – 67). Hence, it is inherently anticipated that a hydrocarbon detection device is utilized in this measurement (MPEP § 2112). In addition, the use of alarms in gas detection systems, and in particular for detecting explosive or hazardous gases, is notoriously well known in the art (MPEP § 2144.03). As a result, a person of ordinary skill in the art would have recognized the suitability of utilizing the hydrocarbon detection device of Saitoh et al. for the intended purpose of detecting hydrocarbon levels within the purified oxygen (MPEP § 2144.07). Furthermore, a person of ordinary skill in the art would accordingly have had a reasonable expectation for success of utilizing the detection device of Saitoh for

Art Unit: 1743

detecting hydrocarbon levels within the product stream of the Honda system. The Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (MPEP § 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the teachings of Saitoh with the system of Honda to provide for the limitations of claims 18, 28 and 29.

Regarding claims 12 & 27, Honda in view of Saitoh, as discussed above, teach all of the structure required to perform the recited method, which merely recites the conventional operation of that structure. It would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the apparatus, as taught by Honda in view of Saitoh, as such is the intended operation of that apparatus.

Allowable Subject Matter

The indicated allowability of claims 2 – 11, 13, 14 & 20 – 27 is withdrawn in view of the new grounds of rejection.

Response to Arguments

1. Applicant's arguments with respect to claims 2 – 11, 13, 14 & 20 – 27 have been considered but are moot in view of the new ground(s) of rejection.
2. Regarding the rejection of claims 15 – 18, 28 & 29 under 35 U.S.C. 112, second paragraph, applicant's arguments filed 3/1/2005 have been fully considered, but they are not persuasive. This rejection is maintained. As discussed above, claims 15 – 18, 28 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting

Art Unit: 1743

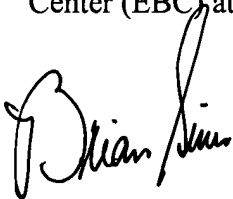
essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Brian J. Sines". The signature is stylized with a large initial "B" and a long, sweeping underline.